

# **Intestinal perforation in newborns - time for less invasive surgical management ? Experience of single center**

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# Introduction

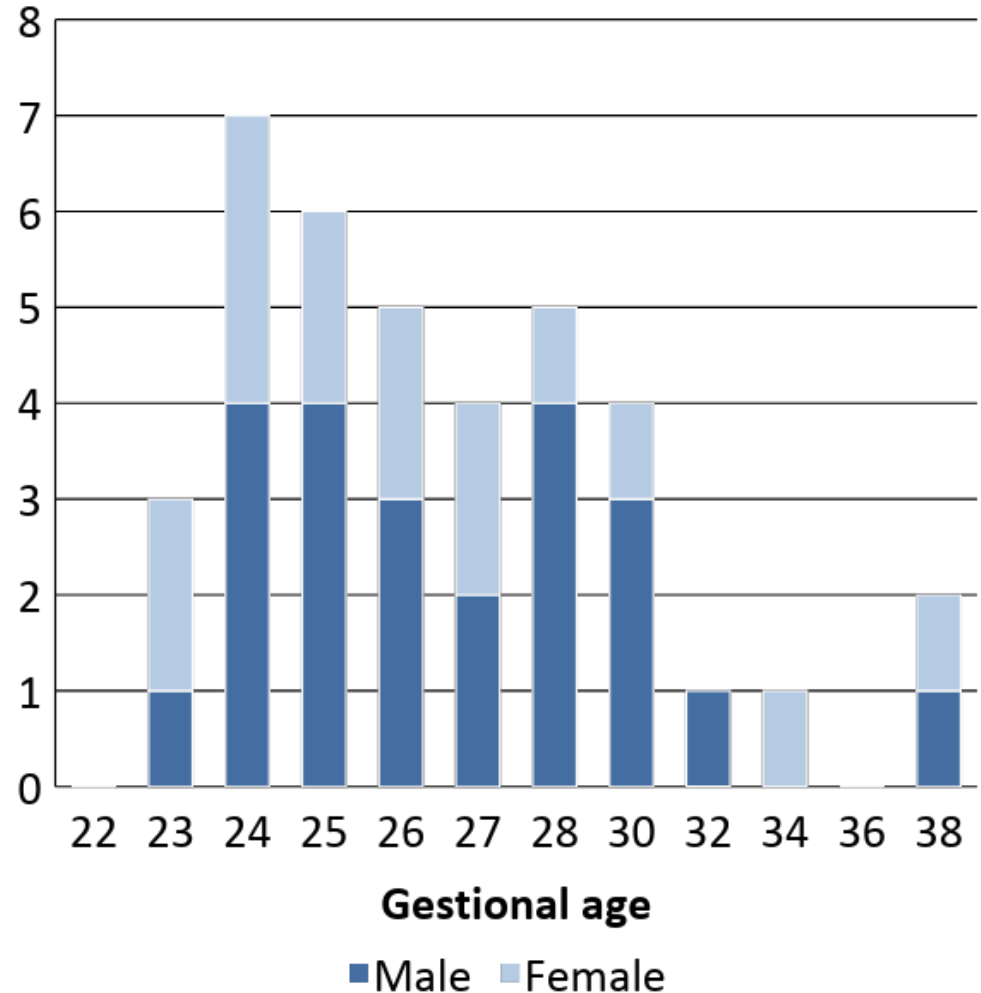
- The main causes of intestinal perforation among neonatal population are: necrotizing enterocolitis (NEC), spontaneous intestinal perforation (SIP), meconium ileus (MI).
- There is no unambiguous guidelines for proceeding in case of its occurrence.
- The aim of the study is to compare the effects of intestinal perforation treatment with peritoneal cavity drainage (PD) with laparotomy based on the experience of our center.

# Materials and methods

- Retrospective analysis, 37 neonates with perforation, one NICU, 2014-2018:
  - GA and BW,
  - primary method of treatment: laparotomy vs PD,
  - endpoints: TPN length, SBS, death,
  - diagnostic methods (US vs X-ray).

# Results

- NEC in 84% of infants (n = 31), 16% (n = 6) spontaneous intestinal perforation (SIP), meconium ileus(MI)
- The average BW was 1027 g
- The average GA was 27 weeks (23 - 38 Hbd; 22 ELGAN)

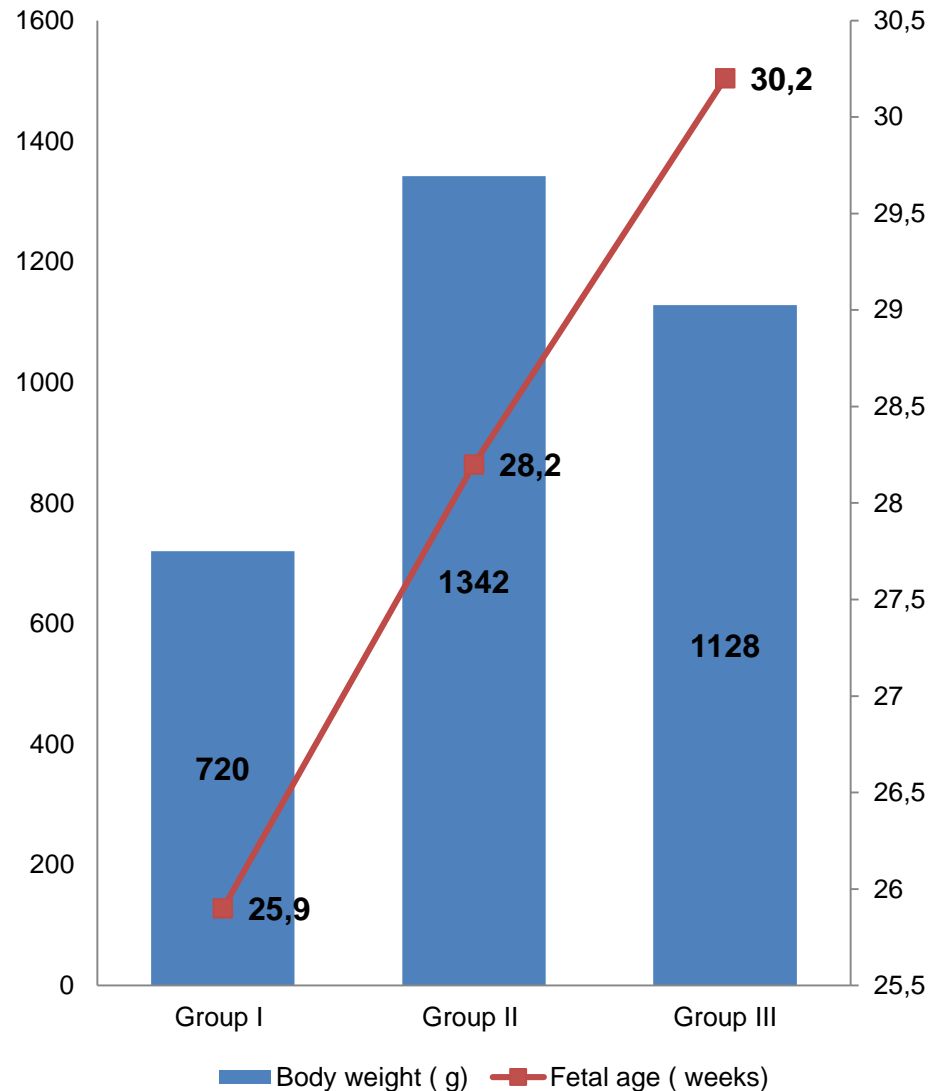


# Results

**Group I** - newborns treated exclusively with PD  
( n=11)

**Group II** - newborns treated with early laparotomy ( n=10)

**Group III** - newborns who underwent delayed laparotomy after PD  
(n=16)

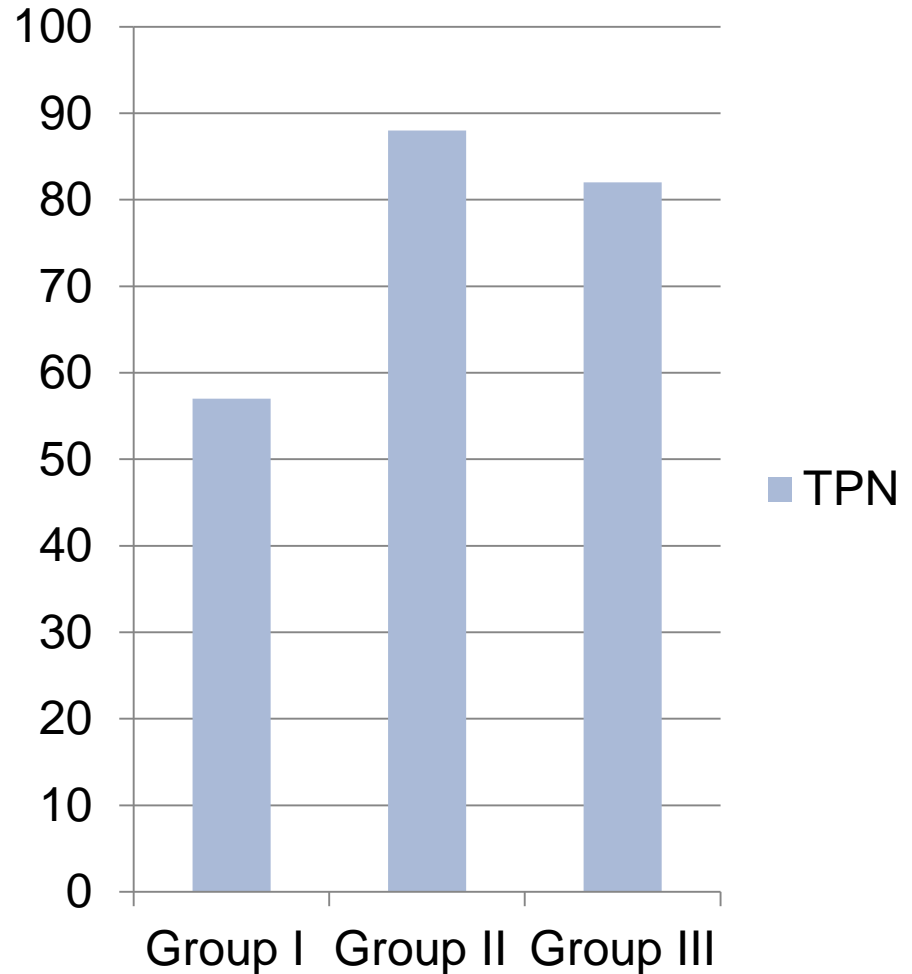


# Results

- PD was performed in 73% of newborns (n=27), 16 of them required laparotomy in the following days (59%).
- Duration of drainage was 1 - 22 days (average 5,8 days).
- Early laparotomy (first line treatment) was performed in 27% (n=10) of neonates.
- US was used as basic diagnostic tool in all 37 patients.
- X-ray of the abdominal cavity was performed in 29 newborns, the result was not always unequivocal and confirmed ultrasound diagnosis.

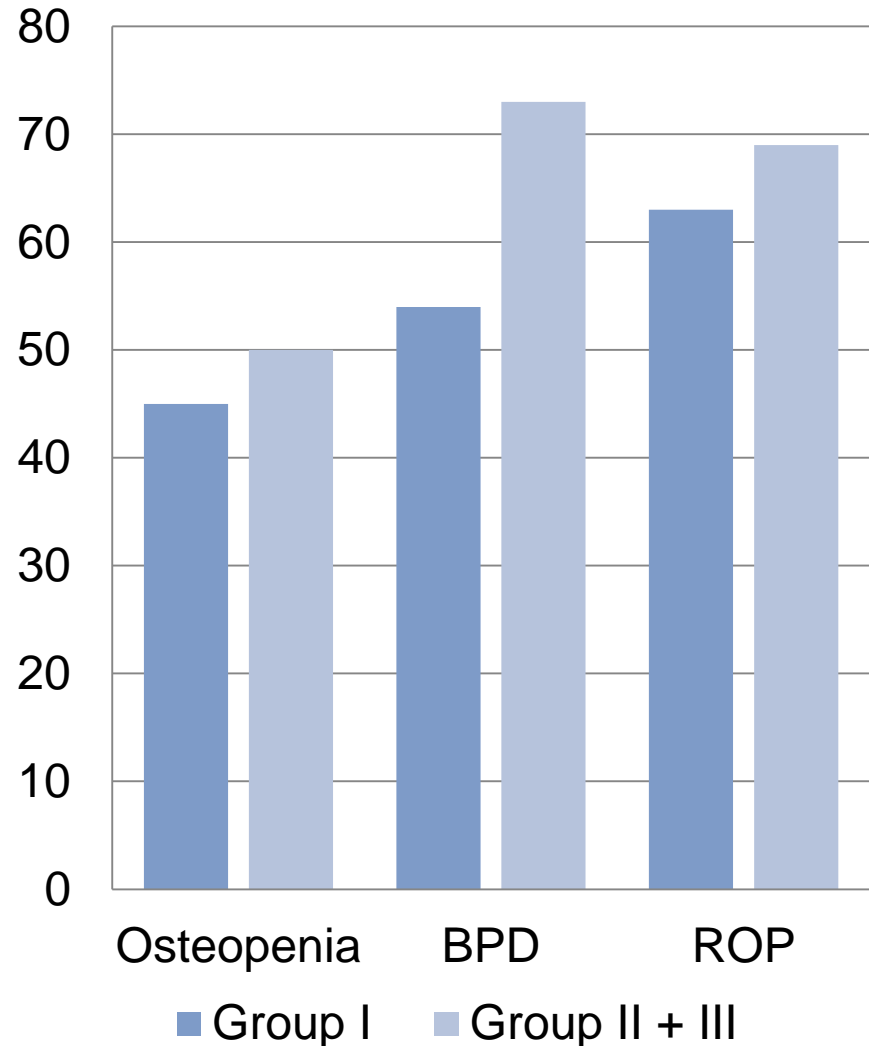
# Results

- The average length of TPN in surviving children was 57 days in group I, 88 days in group II and 82 days in group III.
- In summary, newborns treated surgically (early or delayed laparotomy) required longer parenteral nutrition than children treated with PD (57 vs 90 days,  $p < 0.05$ ).



# Results

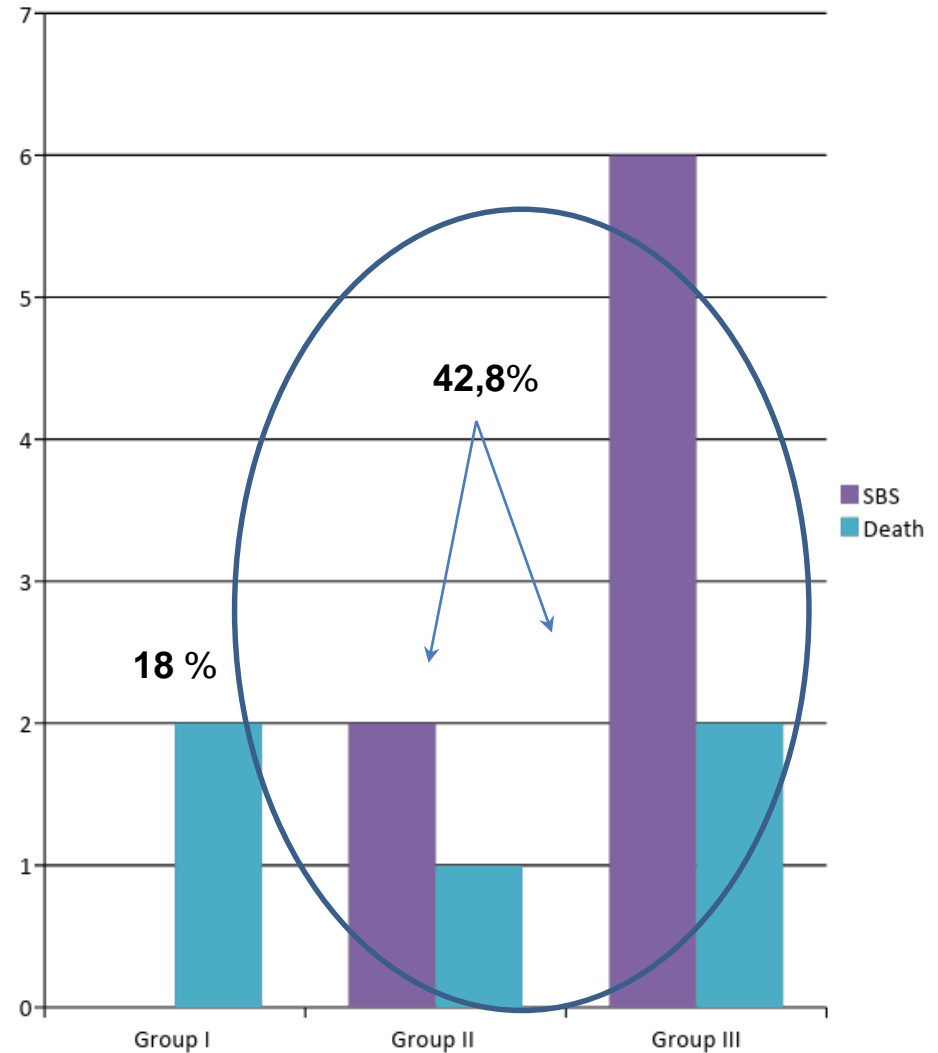
- Osteopenia and ROP was observed less often in group I than in group II and III.
- BPD was observed in 54% in group I and in 73 % in groups treated surgically.





# Results

- Analyzing death and short bowel syndrome as a combined endpoint, these complications are found in a much larger number of infants in the laparotomy group (early and delayed) compared to the PD group 42.8% vs 18%.



# Conclusion

- The experience of our center shows the benefits of less invasive surgical management in infants with intestinal perforation.
- The majority of children with PD as a first line treatment have had finally performed a delayed laparotomy, although had time to stabilize general condition and be better prepared for surgery.
- It seems reasonable to choose treatment using peritoneal drainage as it is associated with a lower rate of fatal complications (death or short bowel syndrome).
- US plays a crucial role in the diagnosis and monitoring treatment, it's a main tool in surgical decision-making.